

## WE CLAIM:

1. A method for ensuring confidentiality of signal transmission in a point-to-multipoint data transmission network, wherein the network comprises at least one hub, at least one transmission medium and at least one station connected to said hub via said at least one transmission medium, the method comprising:

transmitting an upstream signal from a first station;

reflecting said upstream signal by at least one disturbing reflector for producing a disturbing reflection; and

combining said disturbing reflection with a second reflection of said upstream signal to render said second reflection undecodable by a second station.

2. The method according to claim 1, wherein, in the combining step, said second reflection comprises an unwanted reflection.

3. The method according to claim 1, wherein the transmitting step comprises using a transmission medium that comprises an optical fiber.

4. The method according to claim 3, wherein, in the transmitting step, said data transmission network comprises an Ethernet passive optical network and said first station comprises an optical network unit.

5. The method according to claim 3, wherein, in the reflecting step, said at least one disturbing reflector comprises at least one discrete reflector.

6. The method according to claim 3, wherein, in the reflecting step, said at least one disturbing reflector comprises a long continuous reflector.

7. The method according to claim 3, wherein, in the reflecting step, said at least one disturbing reflector is located in a redundant branch of an optical splitter.

8. A system for ensuring confidentiality of signal transmission in a point-to-multipoint data transmission network, wherein the network comprises at least one hub, at least one transmission medium and at least one station connected to said hub via said at least one transmission medium, the system further comprising:

at least one disturbing reflector placed upstream of a first station and a possible point of eavesdropping in said transmission network for producing a disturbing reflection of a signal transmitted by said first station, said disturbing reflection combining with a second reflection of said signal.

9. The system according to claim 8, wherein the at least one disturbing reflector produces the disturbing reflection combining with the second reflection, wherein said second reflection comprises an unwanted reflection.

10. The system according to claim 8, wherein said at least one disturbing reflector is placed upstream of the possible point of eavesdropping in said transmission network comprising at least one transmission medium, and wherein said transmission medium comprises an optical fiber.

11. The system according to claim 10, wherein said at least one disturbing reflector is placed upstream of the possible point of eavesdropping in said transmission network comprising at least one transmission medium, and wherein said data transmission network comprises

an Ethernet passive optical network and said station comprises an optical network unit.

12. The system according to claim 10, wherein said at least one disturbing reflector comprises at least one discrete reflector.

13. The system according to claim 10, wherein said at least one disturbing reflector comprises a long continuous reflector.

14. The system according to claim 10, wherein said at least one disturbing reflector is located in a redundant branch of an optical splitter.

15. A network comprising at least one hub, at least one transmission medium and at least one station connected to said hub via said at least one transmission medium, the network further comprising:

at least one disturbing reflector placed upstream of a first station and a possible point of eavesdropping in said transmission network for producing a disturbing reflection of a signal transmitted by said first station, said disturbing reflection combining with a second reflection of said signal.

16. The network according to claim 15, wherein said at least one disturbing reflector combines with said second reflection, and wherein said second reflection comprises an unwanted reflection.

17. The network according to claim 15, wherein said at least one disturbing reflector is placed upstream of said first station and said possible point of eavesdropping in said transmission network, and wherein said transmission network comprises a transmission medium comprising an optical fiber.

18. The network according to claim 17, wherein said at least one disturbing reflector comprises at least one discrete reflector.

19. The network according to claim 17, wherein said at least one disturbing reflector comprises a long continuous reflector.

20. The network according to claim 17, wherein said at least one disturbing reflector is located in a redundant branch of an optical splitter.

21. A transmission apparatus comprising at least one optical splitter and at least one connector for an optical network unit, the transmission apparatus further comprising:

at least one disturbing reflector placed upstream of a first station and a possible point of eavesdropping in said transmission network for producing a disturbing reflection of a signal transmitted by said first station, said disturbing reflection combining with a second reflection of said signal.

22. The transmission apparatus according to claim 21, wherein said at least one disturbing reflector produces said disturbing reflection combining with said second reflection, wherein said second reflection comprises an unwanted reflection.

23. The transmission apparatus according to claim 22, wherein said disturbing reflector comprises at least one discrete reflector.

24. The transmission apparatus according to claim 22, wherein said disturbing reflector comprises a long continuous reflector.

25. The transmission apparatus according to claim 22, wherein said disturbing reflector is located in a redundant branch of an optical splitter.

26. A point-to-multipoint data transmission network, wherein the network comprises at least one hub, at least one transmission medium and at least one station connected to said hub via said at least one transmission medium, the network further comprising:

transmission means for transmitting an upstream signal from a first station;

reflection means for reflecting said upstream signal by at least one disturbing reflector for producing a disturbing reflection; and

combination means for combining said disturbing reflection with a second reflection of said upstream signal to render said second reflection undecodable by a second station.

27. A system for ensuring confidentiality of signal transmission in a point-to-multipoint data transmission network, wherein the network comprises at least one hub, at least one transmission medium and at least one station connected to said hub via said at least one transmission medium, the system further comprising:

at least one disturbing reflection means, placed upstream of a first station and a possible point of eavesdropping in said transmission network, for producing a disturbing reflection of a signal transmitted by said first station, said disturbing reflection combining with a second reflection of said signal.

28. A network comprising at least one hub, at least one transmission medium and at least one station connected to said hub via said at least one transmission medium, the network further comprising:

at least one disturbing reflection means, placed upstream of a first station and a possible point of eavesdropping in said transmission network, for producing a disturbing reflection of a signal transmitted by said first

station, said disturbing reflection combining with a second reflection of said signal.

29. A transmission apparatus comprising at least one optical splitter and at least one connector for an optical network unit, the transmission apparatus further comprising:

at least one disturbing reflection means, placed upstream of a first station and a possible point of eavesdropping in said transmission network, for producing a disturbing reflection of a signal transmitted by said first station, said disturbing reflection combining with a second reflection of said signal.